

Serial Number 10/053,275
Amendment Under 37 CFR§111
Reply to Office Action of October 6, 2004

Amendment to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

CLAIMS

Claim 1 (original): An adhesion promoter comprising:

a polymeric strand with an epoxy-reactive group other than a phenolic hydroxyl group and further comprising a crosslinking group;

wherein the crosslinking group is capable of crosslinking the polymeric strand with a rubber in a crosslinking reaction; and

wherein the polymeric strand is water soluble in an amount of no less than 10g/l.

Claim 2 (original): The adhesion promoter of claim 1 wherein the polymeric strand comprises an organic polymer.

Claim 3 (original): The adhesion promoter of claim 2 wherein the organic polymer comprises polybutadiene.

Claim 4 (original): The adhesion promoter of claim 3 wherein the polybutadiene is grafted with a maleic anhydride, and wherein the maleic anhydride is reacted with a compound selected from the group consisting of a methoxy polyethylene glycol, a monoamine terminated polyoxyalkylene, and a monoalcohol terminated polyoxyalkylene.

Claim 5 (original): The adhesion promoter of claim 1 further comprising a second polymer.

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Claim 6 (original): The adhesion promoter of claim 5 wherein the second polymer comprises a styrene-butadiene-vinylpyridine terpolymer.

Claim 7 (original): The adhesion promoter of claim 1 wherein the epoxy-reactive group is a carboxylic acid group.

Claim 8 (original): The adhesion promoter of claim 1 wherein the crosslinking group is in the backbone of the polymeric strand.

Claim 9 (original): The adhesion promoter of claim 8 wherein the crosslinking group comprises a double bond.

Claim 10 (original): The adhesion promoter of claim 1 wherein the crosslinking reaction comprises formation of a covalent bond with a sulfur atom.

Claim 11 (original): The adhesion promoter of claim 1 wherein the crosslinking reaction comprises a reaction selected from the group consisting of a nucleophilic addition, an electrophilic addition, and a cyclo addition.

Claim 12 (original): The adhesion promoter of claim 1 wherein the rubber is at least one of a synthetic rubber and a natural rubber.

Claim 13 (original): The adhesion promoter of claim 6 wherein the rubber further comprises polybutadiene grafted with maleic anhydride.

Claims 14-22 (canceled)

Claim 23 (new): The adhesion promoter of claim 1 wherein said polymeric strand is soluble in water in an amount of no less than 30g/l to 200 g/l.

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Claim 24 (new): The adhesion promoter of claim 1 wherein the crosslinking group is in a pendent position to the polymeric strand.

Claim 25 (new): The adhesion promoter of claim 24 wherein the crosslinking group comprises a 1,2 vinyl microstructure in polybutadiene.

Claim 26 (new): The adhesion promoter of claim 1 wherein the epoxy-reactive group is selected from the group consisting of non-phenolic hydroxyl groups, amine groups and sulfohydriyl groups.

Claim 27 (new): The adhesion promoter of claim 3 wherein the polybutadiene is grafted with maleic anhydride.

Claim 28 (new): The adhesion promoter of claim 27 wherein the maleic anhydride is reacted with a polyalkylene oxide.

Claim 29 (new): The adhesion promoter of claim 27 wherein the maleic anhydride is reacted with a methoxy polyethylene glycol.

Claim 30 (new): The adhesion promoter of claim 1 which consists essentially of said polymeric strand.

Claim 31 (new): An adhesion promoter comprising:
a polybutadiene polymeric strand grafted with a maleic anhydride, the maleic anhydride being reacted with a methoxy polyethylene glycol, and further comprising a crosslinking group;

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wherein the crosslinking group is capable of crosslinking the polymeric strand with a rubber in a crosslinking reaction; and

wherein the polymeric strand is water soluble in an amount of no less than 10g/l.

Claim 32 (new): The adhesion promoter of claim 31 further comprising a styrene-butadiene-vinylpyridine terpolymer.

Claim 33 (new): The adhesion promoter of claim 32 wherein the rubber further comprises a polybutadiene grafted with maleic anhydride.

Claim 34 (new): The adhesion promoter of claim 32 wherein said polymeric strand is soluble in water in an amount of no less than 30g/l to 200 g/l.

Claim 35 (new): The adhesion promoter of claim 32 wherein the polybutadiene has a molecular weight of from about 2000 to 5000.

Claim 36 (new): The adhesion promoter of claim 35 wherein the maleic anhydride is present in an amount of from 1 to 30 weight percent.

Claim 37 (new): The adhesion promoter of claim 36 wherein the maleic anhydride is present in an amount of from 15 to 20 weight percent.

Claim 38 (new): An adhesion promoter consisting essentially of:

a polybutadiene polymeric strand grafted with a maleic anhydride, the maleic anhydride being reacted with a methoxy polyethylene glycol, and further comprising a crosslinking group;

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wherein the crosslinking group is capable of crosslinking the polymeric strand
with a rubber in a crosslinking reaction;

wherein the polymeric strand is water soluble in an amount of no less than 10g/l;

and

a styrene-butadiene-vinylpyridine terpolymer.